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Some modern methods of the pore space studying in the carboniferous carbonate rocks

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Abstract

Copyright © (2012) by the European Association of Geoscientists & Engineers All rights reserved. The most common and widespread research task in geology is the determination of porosity and its nature. Analysis of mineral composition of rocks, formation of grains' sequence and its genesis contributes greately in understanding the nature of porosity. This analysis might be performed by using polarizing microscope. Alternative of thin sections examination under polarizing microscope is getting images of thin sections and its' following processing. The processing images of thin sections for solving different geological tasks is very popular abroad, but in Russia that kind of research is not developed. Meanwhile processing computer images gives a number of advantages and opens new abilities in getting information about mineral units which are not available by non-computer methods. The research involves the study of the pore space configuration of carbonate petroleum reservoir through a particular example of computer processing of a series of thin section images. The results are then compared to the results from laboratory X-ray tomography methods. The well known Dunham (1962) and Lucia (1995) classifications of carbonate rocks were used to systematize the observations. Measurements of gas permeability, residual water saturation and rock wettability were also analyzed.